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# Recurrent Biliary Obstruction Overcome with Metal Biliary Stent Placement in the Surgically Altered Down Syndrome Patient for Congenital Duodenal Atresia

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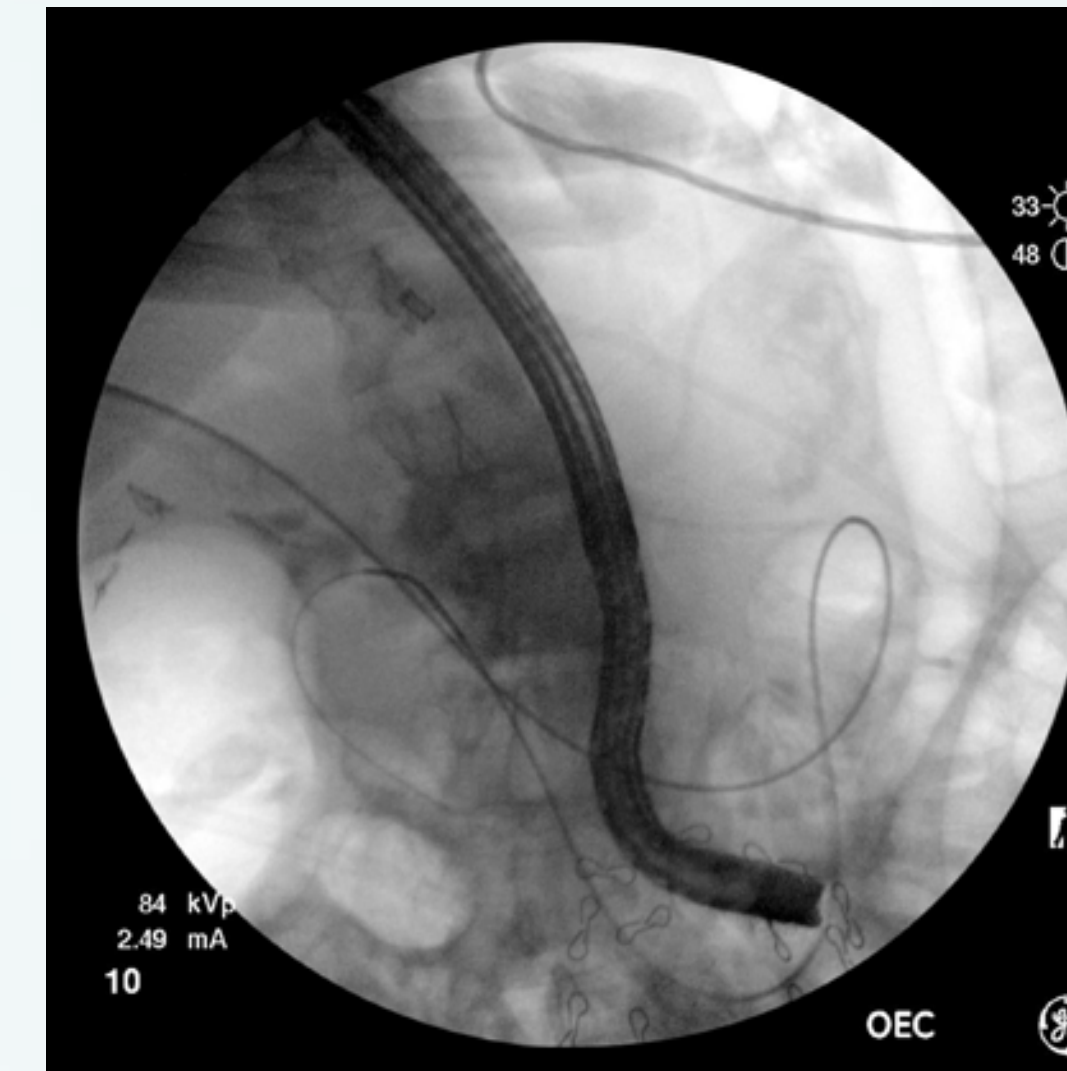
## Purpose

- Patients with Down syndrome have increased rates of GI malformations and pathology
- In our case a patient with Down syndrome had surgical interventions at birth for congenital duodenal atresia and recurrent cholelithiasis
- Duodenal atresia is a failure of the duodenum to recanalize in gestation resulting in gastric outlet obstruction at birth, and it is largely associated with Down syndrome
- It requires early surgical duodenoduodenostomy or duodenojejunostomy
- Patients with Down syndrome also have a high prevalence of cholelithiasis which may require surgery
- Historically, surgical procedures like choledochoduodenostomy were used in patients with variants of biliary lithiasis
- We describe a unique endoscopic intervention in an adult patient with Down syndrome with recurrent biliary obstruction and convoluted anatomy after childhood surgeries

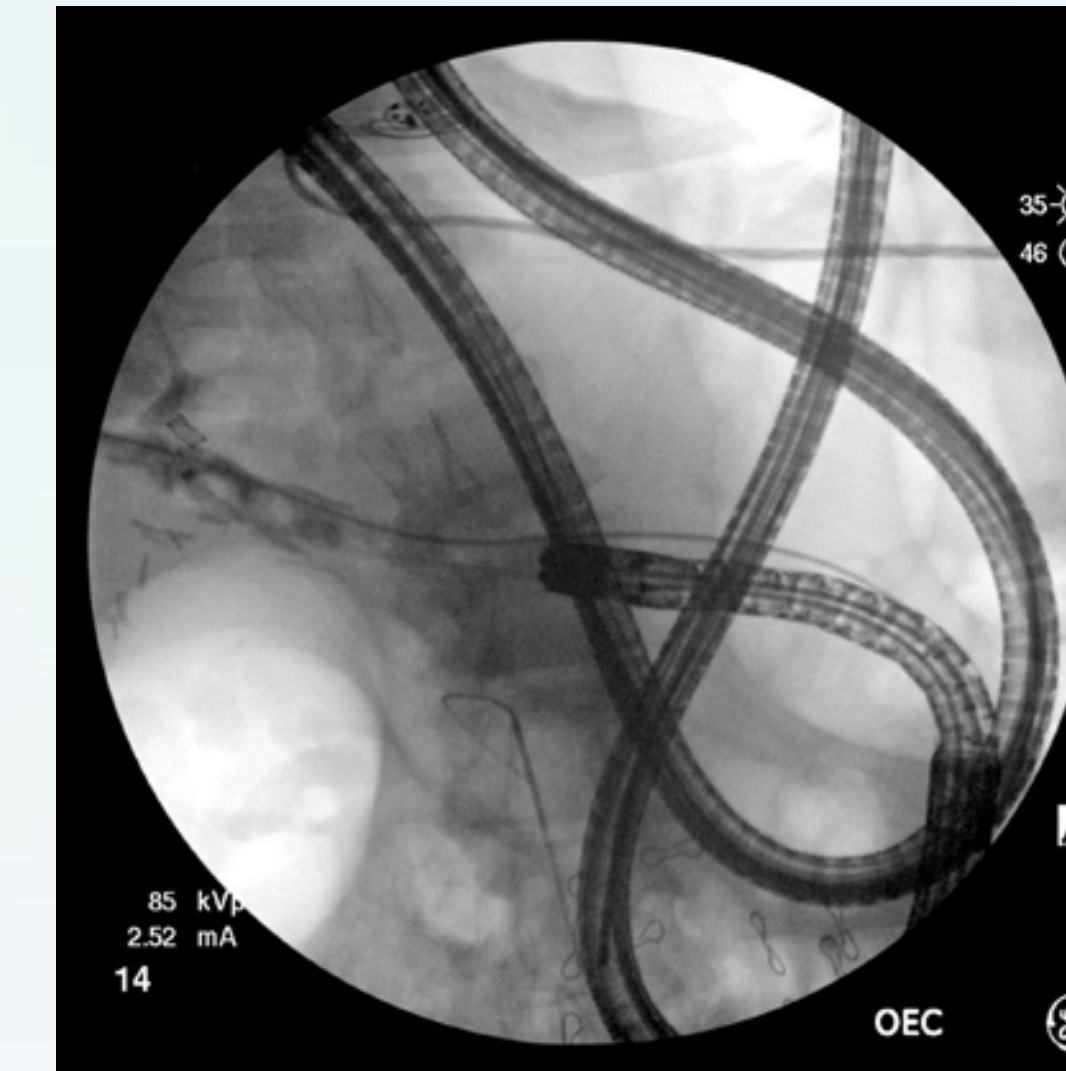
## Case Presentation

- A 53 year-old female with remote choledochoduodenostomy and duodenojejunostomy presents with recurrent choledocholithiasis
- The patient has a history of Down syndrome with duodenal atresia requiring surgery at birth, and cholecystectomy later in life
- She had recurrent episodes of choledocholithiasis requiring percutaneous transhepatic cholangiography by interventional radiology (IR)
  - Interventions included balloon dilation of the ampulla and internal/external biliary tube placement
- She still continued developing stones at the choledochoduodenostomy anastomotic site with abdominal pain and elevated transaminases
- Her recurrent tube malposition and stone formation led to four IR procedures for tube repositioning and stone removal
- Endoscopic intervention was necessitated by failed IR therapies and patient discomfort with the external tube
- A rendezvous procedure with IR was initially performed to define positioning
  - The standard duodenoscope could not reach the anastomotic site and was exchanged for a pediatric colonoscope
  - Antegrade cannulation with a wire via transhepatic access allowed retrograde guidance of the colonoscope to the anastomotic site
- A subsequent ERCP was performed using a pediatric colonoscope based on previously defined anatomy
  - Cholangiogram, balloon sweeps with stone removal, and fully covered biliary metal stent deployment were performed
- In this case deviation from the standard duodenoscope used in ERCP facilitated the definitive therapy in a patient with prior choledochoduodenostomy
- At follow-up the patient is doing well and her transaminases have normalized

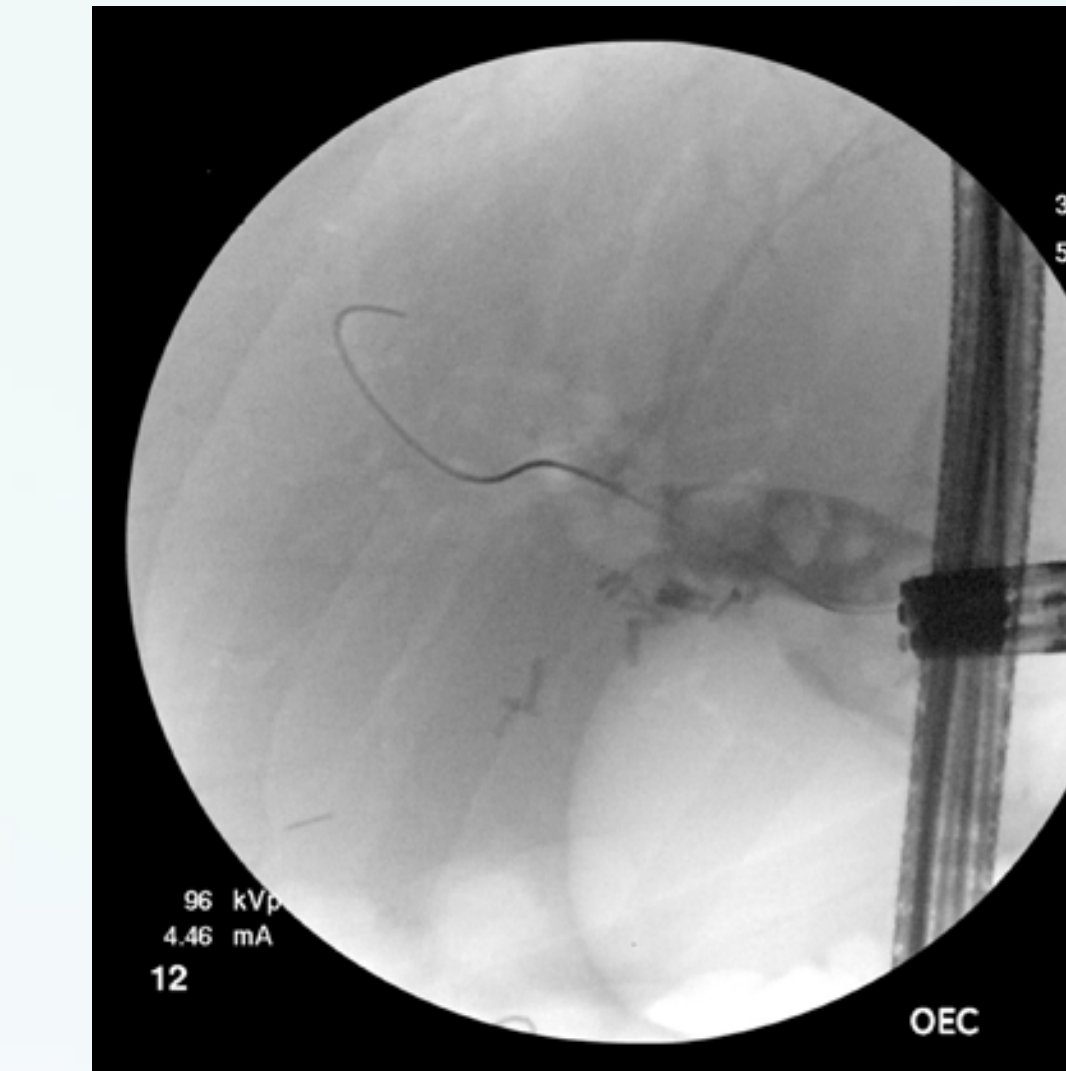
## Images



Transcutaneous catheter with a wire traversing internally through biliary anastomosis into the efferent limb, and a pediatric colonoscope is seen identifying the wire at the enteral anastomosis



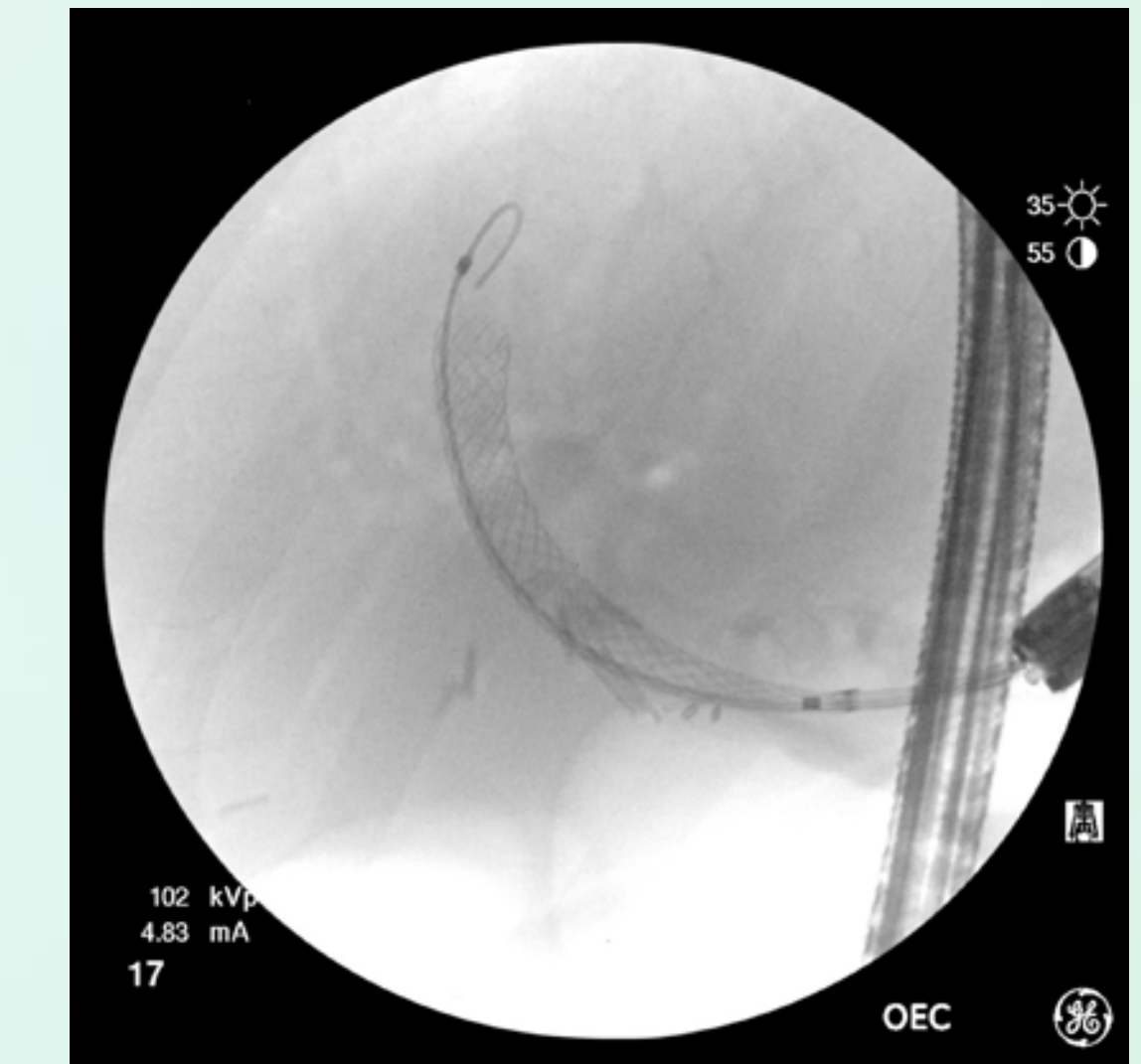
A pediatric colonoscope directly visualizing the biliary enteric anastomosis after localization with transcutaneous wire guidance



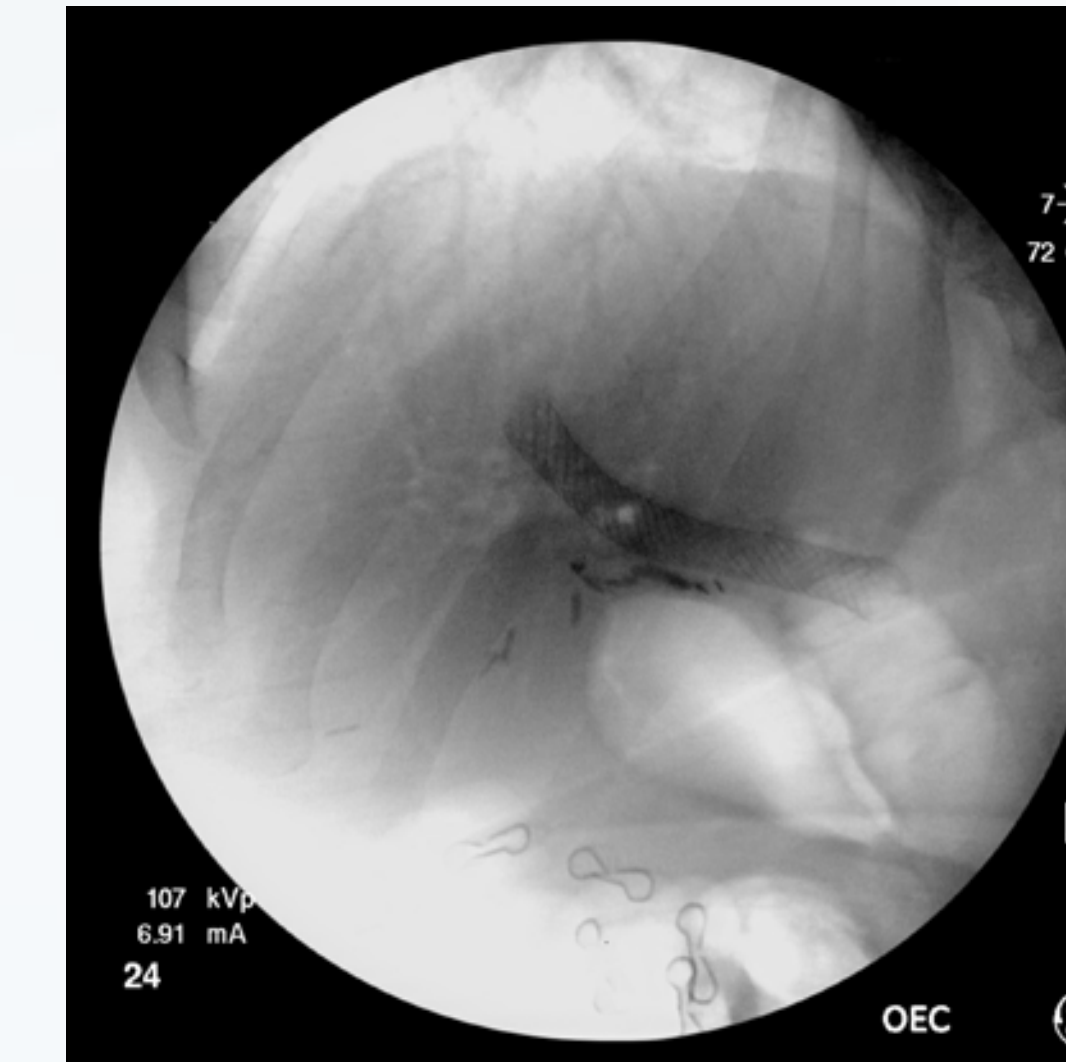
Cholangiogram showing significant dilatation of the bile duct (12 mm in cross-sectional diameter) with multiple stones appreciated in the distal common bile duct



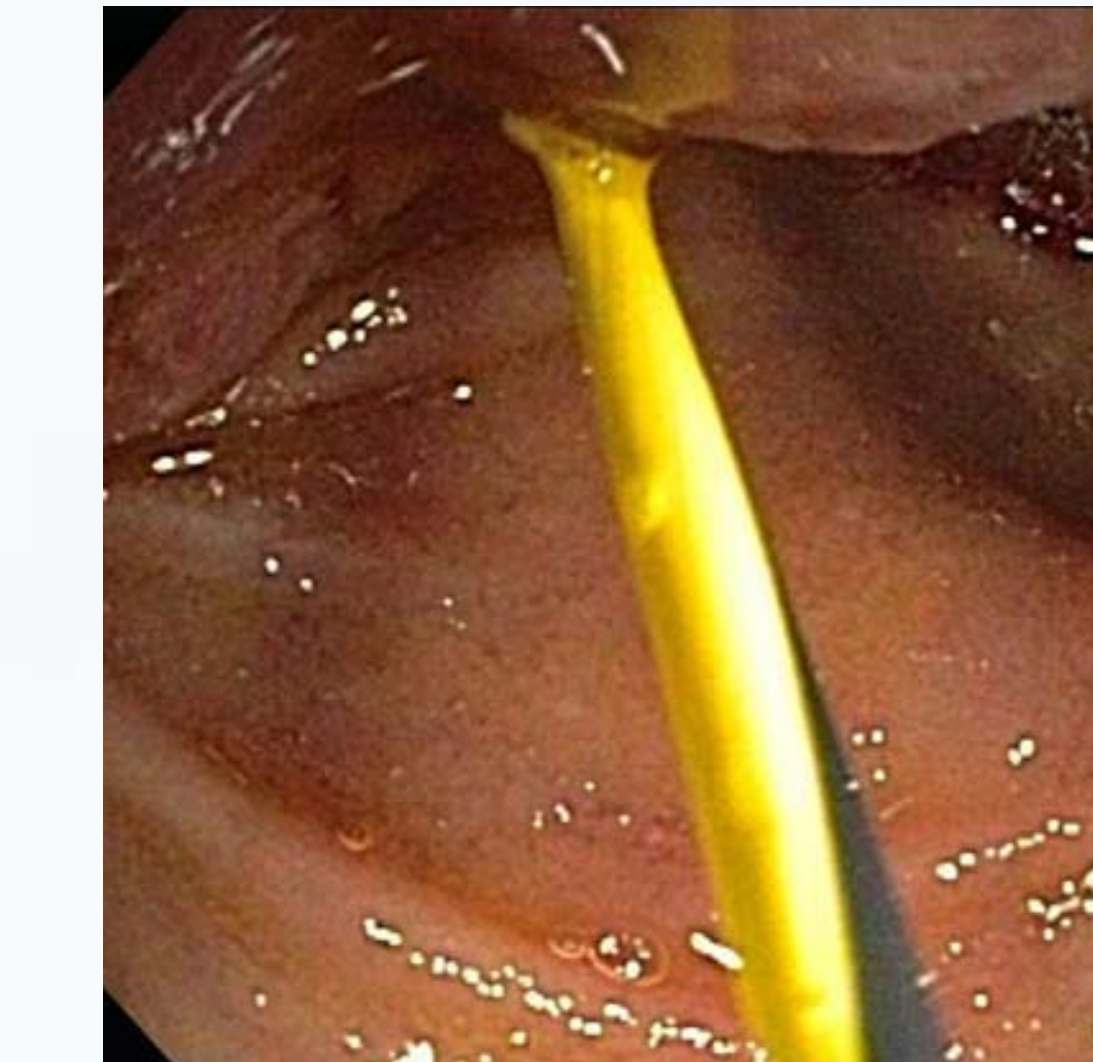
A fully covered self-expanding metal stent is directed into the biliary anastomosis



A partially deployed biliary stent at the site of biliary anastomosis



Well positioned biliary stent at the biliary anastomosis placed using a pediatric colonoscope



Wire guided cannulation of the choledochoduodenostomy site using a pediatric colonoscope



Placement of a biliary stent at the anastomotic site using a pediatric colonoscope



Biliary metal stent after deployment at the biliary anastomosis

## Discussion

- To our knowledge this is the first case of an endoscopic intervention in altered surgical anatomy for duodenal atresia in a patient with Down syndrome
- Gastroenterologists should become familiar with congenital GI abnormalities with potential surgical alterations to prepare for interventions in these patients

## References:

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- 2 Yamaner S, Bilisel Y, Sokucu N, et al. Endoscopic diagnosis and management of complications following surgery for gallstones. *Surgical Endoscopy* [serial online]. December 2002;16(12):1685-1690.

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